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**September 1996**

**(REVISED SEPTEMBER 1997)**

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**NAVIGATION STUDY FOR  
TAMPA HARBOR  
- BIG BEND CHANNEL - 10128**

**FEASIBILITY REPORT AND  
ENVIRONMENTAL ASSESSMENT**



**US Army Corps  
of Engineers**

Jacksonville District  
South Atlantic Division





DEPARTMENT OF THE ARMY  
OFFICE OF THE CHIEF OF ENGINEERS  
WASHINGTON, D.C. 20314-1000

04  
Tim M ✓

REPLY TO  
ATTENTION OF:

CECW-PE (10-1-7a)

13 OCT 1998

SUBJECT: Tampa Harbor, Big Bend Channel, Florida

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the Tampa Harbor, Big Bend Channel, Florida, study of navigational improvements. It is accompanied by the reports of the district and division engineers. These reports are in partial response to House and Senate resolutions dated 14 November 1979 and 29 May 1979, respectively. The resolutions request review of the report of the Chief of Engineers on Tampa Harbor, Florida, House Document 401, Ninety-first Congress, second session, to determine if the authorized project should be modified. The resolutions specify that improving and maintaining the existing local project for Big Bend Channel and the existing Federal project for Alafia River be considered.
2. The reporting officers recommend modifying the Tampa Harbor navigation project to deepen the entrance channel, east channel, and inner channel at Big Bend from 34 feet to 41 feet below mean low water (MLW). The entrance channel would be widened from 200 feet to 250 feet for a length of 1.9 miles. Additionally, the existing turning basin would be deepened to 41 feet MLW and expanded to provide a minimum width of 1,200 feet. An additional 2 feet of depth would be dredged in the channels and turning basin in conjunction with the initial construction for purposes of advanced maintenance. Associated non-Federal facilities include deepening the berthing areas and modifying bulkheads. Approximately 3.5 million cubic yards of dredged material from the initial construction would be placed on Disposal Island 3D. The dikes on Island 3D would be raised approximately 7 feet to accommodate material from the initial construction of the Big Bend project. A future raising of the disposal area dikes on Island 3D would be necessary to accommodate maintenance dredging. With the authorization of the improvements noted above, the Big Bend channel will become part of the Federal improvements at Tampa Harbor. The plan recommended by the district engineer is the national economic development plan. Preconstruction engineering and design activities for this proposed project will be continued under the resolutions cited above.
3. Project costs are allocated to the commercial navigation project purpose. Based on April 1998 price levels, the estimated cost of the general navigation features (GNF) is \$8,918,000. The

CECW-PE

SUBJECT: Tampa Harbor, Big Bend Channel, Florida

GNF costs include dredging of the channels and turning basin and construction of a dredged material disposal facility. In accordance with Section 101 of WRDA 1986, as amended by Section 201 of WRDA 1996, the Federal and non-Federal shares of GNF are estimated to be \$5,797,000 and \$3,121,000, respectively. In addition, the Federal government would incur the cost of navigational aids currently estimated to be \$438,000. Ten percent of the non-Federal share of costs allocated to GNF may be initially Federally funded and repaid to the Federal government over a period not to exceed 30 years. The non-Federal interests may receive credits for the value of lands, easements, rights-of-way, and relocations (LERR) necessary for the Federal project.

4. Non-Federal interests must bear the cost of local service facilities, including dredging berthing areas, providing disposal area capacity to dispose of dredged materials from berthing areas, and modifying bulkheads. The estimated costs of non-Federal responsibilities that are not subject to cost sharing are estimated to be \$2,133,000 for bulkhead modifications and \$867,000 for berthing area dredging. This \$3,000,000 total cost does not include disposal costs associated with berthing area material since the berthing area material will continue to be placed in the currently used private upland facility. Prior to or during initial construction, the non-Federal interests will also be responsible for the cost of the removal of any shoaled maintenance material from the existing Big Bend channel and turning basin. This cost is expected to be minimal since the existing channel is actively maintained to a depth of 36 feet below MLW, which includes 2 feet for advanced maintenance. Pre-condition surveys will be used to determine this non-Federal cost prior to initiation of construction.

5. The total cost for all features required to obtain the projected navigation benefits, including GNF, LERR, local service facilities, and aids-to-navigation are estimated to be \$12,356,000. Of this amount, \$6,235,000 would be Federal, and \$6,121,000 would be non-Federal. The equivalent annual operation, maintenance, repair, rehabilitation, and replacement (OMRR&R) requirements are currently estimated at \$295,000, based on maintaining the channels, the disposal site facilities, non-Federal berthing areas, and aids-to-navigation. These costs include future disposal facility improvements at Island 3D for creation of capacity for placement of maintenance materials. These disposal facility improvements would be cost shared as GNF. The equivalent annual OMRR&R costs would be allocated \$246,000 Federal (\$187,000 for maintenance dredging of the channel and turning basin, \$3,000 for maintenance of navigation aids, and \$56,000 for disposal facility improvements) and \$49,000 non-Federal (\$19,000 for maintenance dredging of the berthing area and \$30,000 for disposal facility improvements). Island 3D is currently being used as a disposal site for the existing Tampa Harbor project and the estimated maintenance costs are \$60,000 annually. Maintenance costs for the improved disposal site are not expected to increase over and above the current amount but will become a Federal responsibility. Average annual benefits and costs, based on April 1998 price levels and an discount rate of 7-1/8 percent, are estimated at \$3,830,000 and \$1,204,000, respectively, with a resulting benefit-cost ratio of 3.2 to 1.

CECW-PE

SUBJECT: Tampa Harbor, Big Bend Channel, Florida

6. Washington level review indicates that the proposed plan is technically sound, economically justified, and environmentally and socially acceptable. The proposed project complies with applicable U.S. Army Corps of Engineers planning procedures and regulations. Also, the views of interested parties, including Federal, State, and local agencies have been considered.

7. Accordingly, I recommend that the existing Tampa Harbor project be modified to provide navigation improvements generally in accordance with the reporting officers' recommended plan, and with such modifications as in the discretion of the Chief of Engineers that may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of Section 101 of WRDA 1986, as amended by Section 201 of WRDA 1996, for navigation projects. Also, this recommendation is subject to the non-Federal sponsor agreeing to comply with applicable Federal laws and policies, including the following requirements:

a. Provide, operate, maintain, repair, replace, and rehabilitate, at its own expense, the local service facilities in a manner compatible with the project's authorized purposes and in accordance with applicable Federal and State laws and regulations and any specific directions prescribed by the Federal Government;

b. Provide, at no cost to the Government, funds to pay the proportional cost of construction of any dredged material disposal facilities and maintenance thereof, necessary to dispose of dredged or excavated material for the local service facilities during the initial construction of the local service facilities and the operation, maintenance, repair, replacement, and rehabilitation of the local service facilities;

c. Provide all lands, easements, and rights-of-way, including those lands, easements, and rights-of-way required for dredged or excavated material disposal areas, and perform or ensure the performance of all relocations determined by the Federal Government to be necessary for the construction, operation, maintenance, repair, replacement, and rehabilitation of the general navigation features (including all lands, easements, rights-of-way, and relocations necessary for dredged material disposal facilities);

d. Accomplish all removals determined necessary by the Federal Government other than those removals specifically assigned to the Federal Government;

e. In accordance with Section 201 of the Water Resources Development Act of 1996, provide, during the period of construction, a cash contribution equal to the non-Federal cost share of the project's total cost of construction of the general navigation features, which include the construction of land-based and aquatic dredged material disposal facilities or improvements thereof that are necessary for the disposal of dredged material required for project construction,

CECW-PE

SUBJECT: Tampa Harbor, Big Bend Channel, Florida

operation, or maintenance and for which a Federal contract for the facility's construction or improvement was not awarded on or before October 12, 1996;

f. Repay with interest, over a period not to exceed 30 years following completion of the period of construction of the project, up to an additional 10 percent of the total cost of construction of general navigation features depending upon the amount of credit given for the value of lands, easements, rights-of-way, and relocations provided by the non-Federal sponsor for the general navigation features. If the amount of credit exceeds 10 percent of the total cost of construction of the general navigation features, the non-Federal sponsor shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of lands, easements, rights-of-way, and relocations in excess of 10 percent of the total cost of construction of the general navigation features;

g. Provide, or pay to the Federal Government, prior to or during the period of construction, the cost of removal of shoaled maintenance material from the existing Big Bend channel and turning basin which are currently maintained by non-Federal interests at a depth of 36 feet below MLW (when including added depth for advanced maintenance);

h. Give the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal sponsor owns or controls for access to the general navigation features for the purpose of inspection, and, if necessary, for the purpose of operating, maintaining, repairing, replacing, and rehabilitating the general navigation features;

i. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, replacement, and rehabilitation of the project, any betterments, and the local service facilities, except for damages due to the fault or negligence of the United States or its contractors;

j. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of 3 years after completion of the accounting for which such books, records, documents, and other evidence is required, to the extent and in such detail as will properly reflect total cost of construction of the general navigation features, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and local governments at 32 CFR, Section 33.20;

k. Perform, or cause to be performed, any investigations for hazardous substances as are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9601-9675, that may exist in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be necessary for the construction, operation,

CECW-PE

SUBJECT: Tampa Harbor, Big Bend Channel, Florida

maintenance, repair, replacement, or rehabilitation of the general navigation features. However, for lands that the Government determines to be subject to the navigation servitude, only the Government shall perform such investigation unless the Federal Government provides the non-Federal sponsor with prior specific written direction, in which case the non-Federal sponsor shall perform such investigations in accordance with such written direction;

l. Assume complete financial responsibility, as between the Federal Government and the non-Federal sponsor, for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be necessary for the construction, operation, maintenance, repair, replacement, and rehabilitation of the general navigation features;

m. Agree that the non-Federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability. To the maximum extent practicable, perform its obligations in a manner that will not cause liability to arise under CERCLA;

n. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987, and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way, required for construction, operation, maintenance, repair, replacement, and rehabilitation of the general navigation features, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;

o. Comply with all applicable Federal and State laws and regulations, including, but not limited to, Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d), and Department of Defense Directive 5500.11 issued pursuant thereto, as well as Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army";

p. Provide a cash contribution equal to the non-Federal cost share of the project's total historic preservation mitigation and data recovery costs attributable to commercial navigation that are in excess of 1 percent of the total amount authorized to be appropriated for commercial navigation;

q. Enter into an agreement which provides, prior to construction, 25 percent of preconstruction engineering and design (PED) costs;


r. Provide during construction, any additional funds needed to cover the non-Federal share of PED costs; and

CECW-PE

SUBJECT: Tampa Harbor, Big Bend Channel, Florida

s. Do not use Federal funds to meet the non-Federal sponsor's share of total project costs unless the Federal granting agency verifies in writing that the expenditure of such funds is authorized.

8. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It does not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program nor the perspective of higher review levels within the executive branch. Consequently, the recommendation may be modified before it is transmitted to Congress as a proposal for authorization and implementation funding. Prior to transmittal to Congress, we will coordinate any modifications with the Tampa Port Authority, the State of Florida, interested Federal agencies, and other parties, and these parties will be afforded an opportunity to comment further.



JOE N. BALLARD  
Lieutenant General, U.S. Army  
Chief of Engineers




CESAD-ET-PL (CESAJ-PD-PN/18 Sep 96) (10-1-7a) 1st End  
Mr. Meyer/bg/404-331-4326  
SUBJECT: Tampa Harbor - Big Bend Channel Feasibility Report and  
Environmental Assessment

Commander, South Atlantic Division, U.S. Army Corps of Engineers,  
Room 322, 77 Forsyth Street, SW., Atlanta, Georgia 30303-3490  
30 SEP 1996

FOR CDR, HQUSACE, ATTN: CECW-ZA, WASH DC 20314-1000

I concur in the recommendation of the District Engineer to  
authorize construction of navigation improvements to the non-  
Federal Big Bend Channel, Tampa Harbor, Florida, with subsequent  
Federal maintenance of the channel.

Encl

  
R. L. VANANTWERP  
Brigadier General, USA  
Commanding



# DEPARTMENT OF THE ARMY

SOUTH ATLANTIC DIVISION, CORPS OF ENGINEERS

ROOM 322, 77 FORSYTH ST., SW

ATLANTA, GEORGIA 30303-3490

September 30, 1996

## NOTICE OF COMPLETION Feasibility Report Tampa Harbor - Big Bend Channel Tampa, Florida

### COMPLETION OF STUDY

Notice is hereby given that the Jacksonville District and the South Atlantic Division Engineers have completed a final feasibility report and environmental assessment for navigation improvements to the Big Bend Channel, Tampa Harbor, Florida. This report was prepared in partial response to resolutions of the Committee on Public Works and Transportation of the United States House of Representatives dated 14 November 1979 and the Committee on Environment and Public Works of the United States Senate dated 29 May 1979. A Finding of No Significant Impact (FONSI) statement accompanies the report.

### FINDINGS AND RECOMMENDATIONS

The report recommends authorizing construction of navigation improvements to the non-Federal Big Bend Channel and subsequent Federal maintenance of the channel. These improvements consist of deepening the Big Bend entrance channel, turning basin, and inner channel from 34 to 41 feet and widening the entrance channel from 200 to 250 feet. The report also recommends authorizing removal of any excess dredged material from Disposal Island 3D for beneficial uses according to any plans to be developed under the authority of Section 204 of the 1992 Water Resources Development Act (Public Law 102-580).

Based on October 1995 prices, estimated first cost of the plan is \$11,283,000, of which \$4,853,000 would be the Federal share while \$6,430,000 would be the non-Federal share. Average annual benefits and costs based on an interest rate of 7 5/8 percent are estimated at \$3,729,000 and \$1,127,000 respectively with a resulting benefit-cost ratio of 3.3.

The recommendations contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. They do not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program nor the perspective of higher review levels within the Executive

Branch. Consequently, the recommendations may be modified before they are transmitted to the United States Congress as a proposal for authorization and/or implementation funding.

#### COORDINATION

The report has been coordinated with concerned local interests and the responsible state and Federal agencies. The Final Coordination Act Report from the U.S. Fish and Wildlife Service is included in the report.

The Tampa Port Authority is the project sponsor and by letter dated 9 September 1996, expressed support for the project and their intent to secure funding for project implementation.

#### PUBLIC INVOLVEMENT

The draft feasibility report was circulated for public review during August 1996 and comments provided during this review are incorporated in the report.

#### REVIEW AND AUTHORIZATION PROCESS

Prior to adoption of the proposed project, the study evaluations and report findings will be reviewed by the Chief of Engineers and the Assistant Secretary of the Army for Civil Works. A coordinated review, including the state of Florida and other Federal agencies, will also be accomplished at that time. The Chief of Engineers will review the report and forward a recommendation to the Secretary of the Army.

If the recommendation of the Chief of Engineers is significantly different from the recommendation coordinated with the state of Florida and Federal Agencies, interested parties will be afforded an opportunity to comment further prior to submission of the Chief's report to the Secretary. The Assistant Secretary of the Army, in consultation with the Office of Management and Budget, then establishes the Administration position on whether the proposal should be recommended to Congress for authorization.

#### VIEWS OF INTERESTED PARTIES

Interested parties may present written views on the report to the Chief of Engineers and the Secretary of the Army through the Policy Review Branch. Such communications should be mailed to the Policy Review and Analysis Division, ATTN: CECW-AR, 7701 Telegraph Road, Alexandria, Virginia 22315-3861, in time to reach the Policy Review Branch within 30 days from the date of this notice. Copies of information received by mail will be regarded as public information unless the correspondent requests otherwise. Such a request will limit the usefulness of the information because of the need for full public disclosure of all factors relevant to the decision on project approval.

## FINAL ACTION BY THE CHIEF OF ENGINEERS

The Chief of Engineers will not submit a recommendation to the Secretary on the report until after the expiration of this notice or any extension thereof that may be granted, and full consideration of all information submitted in response thereto.

## REPORT INFORMATION

Further information concerning the study and report may be obtained from the District Engineer, Jacksonville. Requests should be addressed to the District Engineer, U.S. Army Engineer District Jacksonville, P.O. Box 4970, Jacksonville, Florida 32232-0019. The report may be viewed by interested parties at the above office. Interested parties may purchase copies of the report at the cost of reproduction (\$22.00). Checks or money orders should be made payable to the Finance and Accounting Officer, U.S. Army Engineer District, Jacksonville.

Please pass along a copy of this public notice to anyone who may be interested in the report and who has not received a copy.

A handwritten signature in dark ink, appearing to read "R. L. VanAntwerp", is written over the typed name.

R. L. VanAntwerp  
Brigadier General, U.S. Army  
Division Engineer



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
JACKSONVILLE DISTRICT CORPS OF ENGINEERS  
P. O. BOX 4970  
JACKSONVILLE, FLORIDA 32232-0019



**TAMPA HARBOR - BIG BEND CHANNEL, FLORIDA**  
**FEASIBILITY REPORT AND**  
**ENVIRONMENTAL ASSESSMENT**



## SYLLABUS

The Tampa Port Authority agreed to sponsor a study of Big Bend Channel and Alafia River. A United States House Committee Resolution adopted November 14, 1979, authorized the study and this report. The Alafia River portion of the study is a single owner situation, and the U.S. Army Corps of Engineers policy does not support improvements to benefit one owner. The feasibility study excluded Alafia River from further consideration. The study findings in this report are only for the Big Bend Channel portion.

The Big Bend Channel study considered engineering, economic, and environmental alternatives in deciding on a plan for improving navigation. The evaluations considered enlarging the channel bottom area as well as deeper depths over that area. Model simulation studies concluded that widening the existing entrance channel from 200 to 250 feet was necessary. That model also indicated a need to enlarge the turning basin for vessels changing direction between the entrance and inner channels. The inner channel and east channel increments of the project remain at an existing bottom width of 200 feet. Depth considered for the channel bottom area ranged from 36 to 46 feet. The selected depth from economic analysis is 41 feet. The total first cost of the navigation project is \$11,348,000 and the total economic first cost is \$11,398,000. The Federal share of the total first cost is \$5,747,000 which includes navigation aid costs of \$438,000. The sponsor's share is \$5,601,000 which includes berth deepening and bulkhead modification costs.

Economic analysis determined the average annual equivalent (AAEQ) values for benefits and costs. The benefits are from transportation savings in the movement of coal, phosphate rock, and phosphate chemicals. The AAEQ benefits are about \$3,729,000. The AAEQ costs include interest and amortization of the total first costs along with periodic maintenance dredging and disposal costs at an interest rate of 7.625 percent. That cost is an estimated \$1,211,000. The benefit-to-cost ratio is 3.1 to 1.

An update of the economics and costs was completed in May 1998. Revised AAEQ benefits are \$3,830,000. The revisions were based upon the current 1998 interest rate of 7.125 percent. The total project construction cost based on April 1998 prices is now estimated at \$12,356,000. The Federal share of the construction cost is estimated to be \$6,235,000 and the non-Federal share is estimated to be \$6,121,000. The revised AAEQ costs which include interest and amortization of the total first costs along with periodic maintenance dredging and disposal costs at an interest rate of 7.125 percent. That cost is an estimated \$1,204,000. The benefit-to-cost ratio is 3.2 to 1.

The study also explored the use of dredged material for environmental benefits. The estimated high fines content in the dredged material makes it unsuitable for direct deposit in an unconfined area. A beneficial use plan was not possible to do along with the proposed navigation project. The process to obtain suitable material for beneficial use involved placement of all excavated quantities first into disposal island 3D. That initial step enables the separation of fines from coarser grain materials within the disposal area. Material, not needed for dike construction, would be available for use in projects to benefit the environment. Consideration of a project for use of that material is more appropriate at some future date using an available authorization process to determine the most feasible plan.

**SELECTED/NED PLAN COST SHARING**  
(April 1998 Price Level)

ITEM	TOTAL COST (000)	FEDERAL SHARE (000)	NON- FEDERAL SHARE (000)
General Navigation Features (GNF)			
Channels and Turning Basin	\$5,248	\$3,411 <u>1/</u>	\$1,837 <u>2/</u>
Environmental Monitoring	92	60	32
Dike and weir construction	2,249	1,462	787
Preconstruction Eng & Design	591	384	207
Construction Management	738	480	258
Subtotal, GNF Costs	\$8,918	\$5,797	\$3,121
Features not Cost Shared			
Berthing Areas <u>3/</u>	\$768	0	\$ 768
Preconstruction Eng & Design	44	0	44
Construction Management	55	0	55
Subtotal, Berthing Areas	\$867	0	\$867
Bulkhead Modification <u>3/</u>	2,133	0	2,133
Navigation Aids	438	438	0
TOTALS	\$12,356	\$6,235	\$6,121

NOTES:

- 1/ The estimated Federal share of general navigation features is 65 percent. The non-Federal sponsor has no estimated credit.
- 2/ Non-Federal sponsor cost is a 25 percent cash contribution plus 10 percent over 30 years for a total of 35 percent of the general navigation features.
- 3/ Berthing areas dredging and bulkhead modifications are 100 percent non-Federal expenses. Also included is a user fee of \$222,000 to use disposal area 3D for placement of berthing area material.



**SELECTED/NED PLAN COST SHARING**  
(April 1998 Price Level)

COST ACCOUNT/DESCRIPTION	TOTAL COST (000)	FEDERAL SHARE (000)	NON- FEDERAL SHARE (000)	FULLY FUNDED COST (000)	FEDERAL SHARE (000)	NON- FEDERAL SHARE (000)
12 DREDGING	\$ 10,928	\$5,317	\$5,557	\$ 11,678	\$ 5,780	\$ 5,898
Channels and Turning Basin	5,248	3,411	1,837	5,618	3,689	1,929
Environmental Monitoring	92	60	32	98	64	34
Navigation Aids	438	438	0	468	468	0
Disposal Areas	2,249	1,462	787	2,399	1,559	840
Berthing Areas	768	0	768	819	0	819
Bulkhead Modification	2,133	0	2,133	2,276	0	2,276
30 PLANNING, ENGINEERING AND DESIGN	\$ 635	\$ 384	\$ 251	\$ 658	\$ 397	\$ 261
Engineering & Design Complete	258	168	90	258	168	90
Engineering & Design	333	216	117	353	229	124
Engineering & Design (100% Non-Fed)	44	0	44	47	0	47
31 CONSTRUCTION MANAGEMENT	\$ 793	\$ 480	\$ 313	\$ 864	\$ 523	\$ 341
Construction Mgmt	738	480	258	804	523	281
Construction Mgmt (100 % non-Fed)	55	0	55	60	0	60
TOTALS	\$12,356	\$6,235	\$6,121	\$13,200	\$ 6,700	\$6,500

# SUMMARY COMPARISON OF SELECTED PLAN BENEFITS AND COSTS

ITEMS	41 Feet
AAEQ Benefits	\$3,830,000
Costs - Interests and Amortization <u>1/</u>	909,000
Maintenance: Channel shoals <u>2/</u>	206,000
Navigation aids	3,000
Disposal area costs <u>3/</u>	86,000
Total AAEQ costs	\$1,204,000
Benefit-to-cost ratio	3.2 to 1

## NOTES:

1/ The total first cost (\$12,356,000) plus IDC of \$50,000 is the total economic cost for the project. That economic cost is then amortized over 50 years at an interest rate of 7.125 percent for the AAEQ cost for all channels (including Advanced Maint), turning basin, bulkhead modifications, berthing areas, and 7 feet of dike on disposal area 3D. During project construction, an additional 3 feet (above the 7 feet required for construction) will be constructed for maintenance at a cost of \$1,906,000. The Big Bend Share is \$423,000. This first cost is from the updated project cost estimate.

2/ Annual costs for maintenance to remove shoals include the excavation of material from the project channels, turning basin, and berthing areas with placement in disposal island 3D. Includes removal of 720,000 cy of material every nine years for the 50 year project life. Each maintenance event is estimated in current dollars at \$2,517,000. The present worth of all of the maintenance events on 9 year cycles is \$2,587,000. The present worth spread out over 50 years at 7.125% is \$206,000. The Non-Federal portion of the cost is \$19,000 for berthing area maintenance. The Federal portion is \$187,000 for channel and turning basin maintenance.

3/ Average annual costs for disposal include the Big Bend Share (22.2%) of all dike improvements at Disposal Island 3D. In project year 7, an additional 10 feet of dike will be construction for maintenance at a cost of \$7,729,000. The Big Bend Share is \$1,716,000. The Present Value of \$1,716,000 at 7.125% is \$1,060,000 which is the total first cost of the Big Bend Share. The AAEQ of \$1,060,000 at 7.125% over a 30 year life is \$86,000. The non-Federal cost sharing is 35 percent of the \$86,000 or \$30,000. The Federal cost is 65 percent or \$56,000.

TAMPA HARBOR - BIG BEND CHANNEL, FLORIDA  
FEASIBILITY REPORT AND  
ENVIRONMENTAL ASSESSMENT

TABLE OF CONTENTS

<u>TITLE</u>	<u>PAGE NO.</u>
INTRODUCTION.....	1
AUTHORITY.....	1
PURPOSE AND SCOPE.....	3
PRIOR STUDIES AND REPORTS.....	3
EXISTING PROJECTS.....	4
EXISTING CONDITIONS.....	4
PORT BERTHS AND TERMINAL FACILITIES.....	4
TRIBUTARY AREA.....	8
SOCIO-ECONOMIC STATISTICS.....	10
COMMODITIES.....	11
TAMPA HARBOR HISTORIC DREDGED VOLUMES.....	13
ALAFIA RIVER AND BIG BEND CHANNEL DISPOSAL SITES .....	13
DISPOSAL ISLANDS 2D AND 3D CAPACITIES .....	14
BIG BEND MAINTENANCE AND DISPOSAL AREA.....	14
VESSEL FLEET.....	14
FUTURE CONDITIONS WITHOUT NAVIGATION IMPROVEMENTS.....	15
PORT CARGO TONNAGE.....	15
FUTURE VESSEL FLEET PROJECTIONS.....	16
TERMINAL FACILITIES.....	16
BIG BEND DISPOSAL AREA.....	17
DISPOSAL ISLANDS 2D AND 3D.....	17
OTHER DREDGED MATERIAL USES.....	18
PROBLEM IDENTIFICATION.....	19
NAVIGATION PROBLEMS.....	19
ECONOMIES OF SCALE.....	21

NEEDS AND OPPORTUNITIES.....	21
PLANNING OBJECTIVES.....	22
ALTERNATIVE PLAN EVALUATIONS.....	22
NO ACTION PLAN.....	22
BOTTOM WIDENING PLAN .....	23
PLAN B - DEEPENING ALTERNATIVES.....	29
DISPOSAL ALTERNATIVE EVALUATION.....	30
DISPOSAL ISLAND 3D DIKING POTENTIAL.....	34
MAINTENANCE COST EVALUATION.....	35
ENVIRONMENTAL EVALUATION.....	36
TERMINAL FACILITY EVALUATION.....	37
FIRST COST ANALYSIS.....	38
INTEREST DURING CONSTRUCTION.....	40
AVERAGE ANNUAL EQUIVALENT (AAEQ) COST.....	41
DEPTH ANALYSIS.....	43
RISK AND UNCERTAINTY ASSOCIATED WITH CRITICAL ASSUMPTIONS.....	46a
ADVANCED MAINTENANCE.....	47
SELECTED PLAN.....	50
NAVIGATION PLAN FEATURES.....	50
DESIGN.....	52
EXCAVATION.....	53
DISPOSAL.....	54
DIKES .....	54
WEIRS .....	55
ENVIRONMENTAL CONSIDERATIONS.....	55
PRECONSTRUCTION PLANNING.....	56
CONSTRUCTION.....	56
NAVIGATION PLAN FIRST COST.....	56
OPERATION AND MAINTENANCE.....	57
ECONOMIC ANALYSIS .....	59
PLAN IMPLEMENTATION.....	62
IMPLEMENTATION AUTHORITY.....	63
NON-FEDERAL RESPONSIBILITIES.....	63
FEDERAL RESPONSIBILITIES.....	64
FLOOD PLAIN ASSESSMENT.....	66
COASTAL ZONE MANAGEMENT ACT.....	66
COASTAL BARRIER RESOURCES ACT.....	66
PUBLIC INVOLVEMENT.....	66
CONCLUSIONS.....	67
RECOMMENDATIONS.....	69

### LIST OF TABLES

<u>TABLE NO.</u>	<u>PAGE NO.</u>
1. POPULATION PROJECTIONS.....	10
2. COMMODITY HISTORY.....	12
3. BENEFIT ESTIMATES BY PROJECT DEPTH.....	29
4. ESTIMATED EXCAVATION AND DIKE QUANTITIES.....	35
5. ESTIMATED TOTAL FIRST COSTS OF VARIOUS DEPTH PLANS.....	41
6. SUMMARY COMPARISON OF BENEFITS AND COSTS BY DEPTH.....	42
7. SUMMARY COMPARISON OF BENEFITS AND COSTS - INNER CHANNEL.....	44
8. SUMMARY COMPARISON OF BENEFITS AND COSTS - EAST CHANNEL.....	45
9. ADVANCED MAINTENANCE ANALYSIS.....	49
9a. COST SHARING FOR ALTERNATIVE PLANS.....	49a
10. SELECTED PLAN ESTIMATED TOTAL FIRST COST.....	57
11. SUMMARY COMPARISON OF SELECTED PLAN BENEFITS AND COSTS.....	59
12. SELECTED PLAN COST SHARING.....	65

### LIST OF FIGURES

<u>FIGURE NO.</u>	<u>PAGE NO.</u>
1. LOCATION MAP.....	2
2. EXISTING PROJECT.....	5
3. LOCATION OF PORT FACILITIES.....	6
4. TECO FACILITIES.....	7
5. AGRICO/IMC FACILITIES.....	9
6. ILLUSTRATION OF CRABBING ANGLE.....	20
7. BOTTOM PLAN.....	25
8. TURNING BASIN PLAN.....	27
9. BENEFICIAL USE AREA LOCATIONS.....	33
10. SELECTED PLAN.....	51

### LIST OF APPENDICES

<u>TITLE</u>	<u>APPENDIX NO.</u>
ENGINEERING, DESIGN, AND COST.....	A
ECONOMIC ANALYSIS.....	B
SHIP SIMULATION STUDY.....	C
REAL ESTATE. ....	D
INTEREST DURING CONSTRUCTION.....	E
DREDGE MATERIAL MANAGEMENT PLAN.....	F
SPONSOR CORRESPONDENCE.....	G



## INTRODUCTION

The Big Bend navigation features are now privately maintained to serve two land owners. Those owners handle phosphate rock and phosphate chemicals as well as coal for electric power generation. The Tampa Port Authority also owns land in the area with potential for future terminal development. The depth of the channels, berths, and turning basin is presently about 34 feet<sup>1</sup>. The entrance and inner channel widths are about 200 feet. The irregularly shaped turning basin has a turning diameter of about 1,000 feet.

A reconnaissance report was completed in 1980 that recommended further study for both Big Bend Channel and Alafia River. The following feasibility report recommended channel widths of 300 feet and depths of 43 feet for both Alafia River and Big Bend Channel. The feasibility report was submitted to the Board of Engineers for Rivers and Harbors in 1985 but was returned at the sponsor's request. Another reconnaissance report was prepared in 1991 which recommended further study of only Big Bend Channel. Alafia River was found to be a single owner situation and no further study was recommended for that portion.

A Feasibility Cost Sharing Agreement (FCSA) was negotiated and executed in 1992 for a feasibility level study of Big Bend Channel. This report is the culmination of that study.

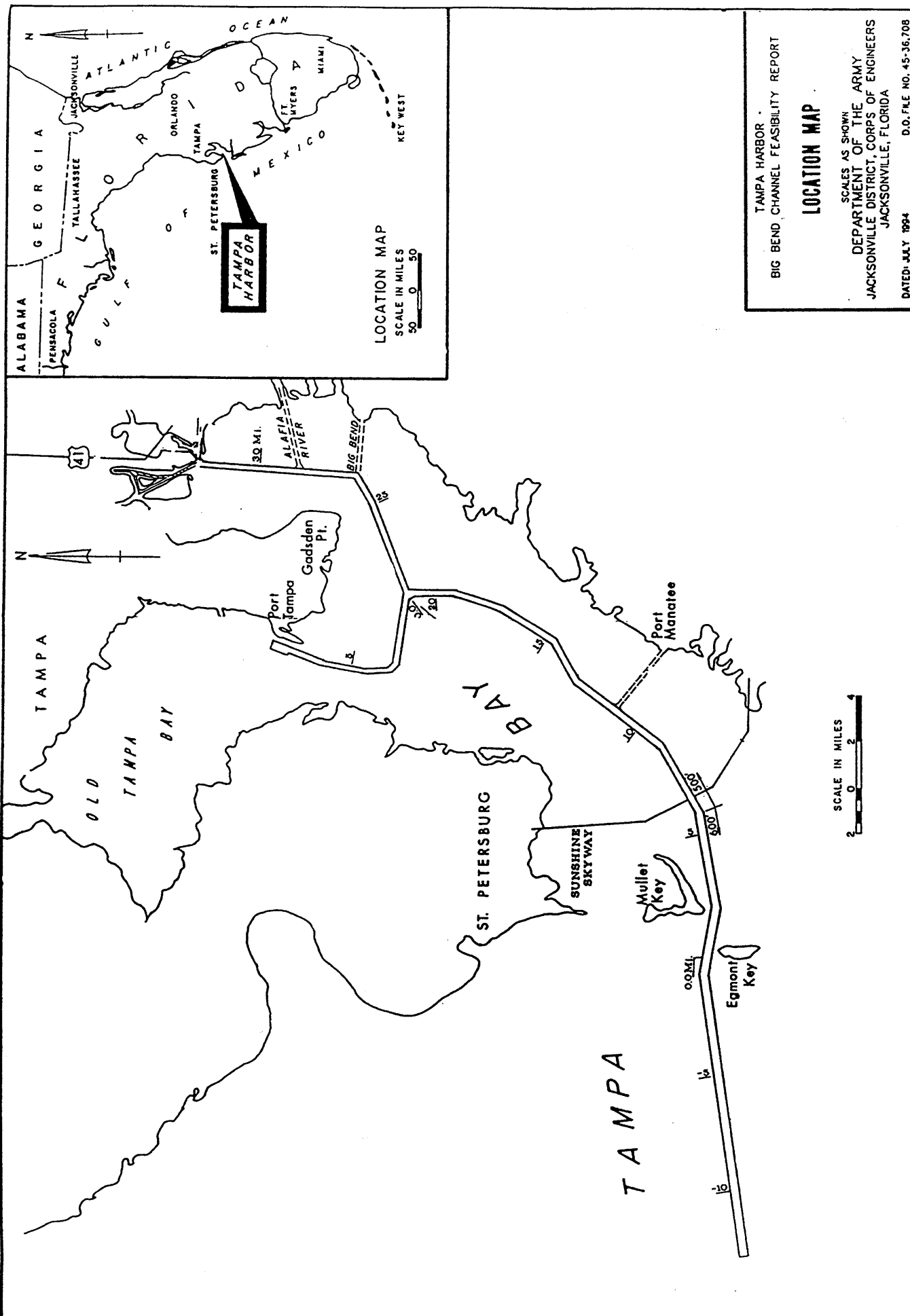
## AUTHORITY

The present study is authorized by Senate and House Resolutions adopted 29 May 1979 and 14 November 1979, respectively. The content of the resolutions is as follows for the study area shown on figure 1:

"Resolved by the committee on Public Works and Transportation of the House of Representatives, United States, that the Board of Engineers for Rivers and Harbors is hereby requested to review the report of the Chief of Engineers on Tampa Harbor, Florida, printed in House Document No. 401, Ninety-First Congress, Second Session, and other pertinent reports, with a view of determining if the authorized project should be modified in any way at this time, with particular reference to improvement and maintenance of the existing local project for Big Bend Channel and the existing Federal project for Alafia River." and

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<sup>1</sup> All depths in this report are referenced to mean low water except where stated otherwise.





"Resolved by the committee on Environment and Public Works of the United States Senate, that the Board of Engineers for Rivers and Harbors is hereby requested to review the report of the Chief of Engineers on Tampa Harbor, Florida, printed in House Document No. 401, Ninety-First Congress, Second Session, and other pertinent reports, with a view of determining if the authorized project should be modified in any way at this time, with particular reference to improvement and maintenance of the existing local project for Big Bend Channel and the existing Federal project for Alafia River."

## **PURPOSE AND SCOPE**

The Tampa Port Authority (TPA) is the sponsor for the recommended modifications to the existing project at Big Bend Channel. The purpose of this study is to consider the feasibility of further modifying the existing private navigation project for Big Bend Channel. Particular emphasis is placed on deepening and widening the existing channel to safely accommodate the existing and prospective vessel fleet. The channel provides access to the authorized 43-foot Tampa Harbor Main Shipping Channel. This report provides the results of investigations to determine the Federal interest and feasibility of project construction. The selected solution from that investigation is in concert with current policies for navigation improvements to the existing project at Big Bend Channel.

## **PRIOR STUDIES AND REPORTS**

A second reconnaissance report on Big Bend Channel and Alafia River was completed in 1991. The recommendation in that report was only for more detailed study of the Big Bend Channel. This feasibility report contains the results of that study. The only other study and report on Big Bend Channel was in conjunction with the Alafia River. That report went to the Board of Engineers for Rivers and Harbors in 1985. That Board returned the report at the local sponsor's request.

The first favorable report for the Alafia River, contained in Senate Document 16, 77th Congress, First Session, recommended a channel 150 feet wide and turning basin to a depth of 25 feet in Alafia River. The second favorable report in House Document 258, 81st Congress, First Session, recommended a channel 200 feet wide and turning basin 700 feet by 1200 feet both to a depth of 30 feet in Alafia River. The River and Harbor Acts of 2 March 1945 and 17 May 1950, respectively, authorized those projects.

Numerous studies have been made on the existing Tampa Harbor project; the latest report is in House Document 91-401, 91st Congress, First Session, and the most recent Congressional project authorization is in the River and Harbor Act of 31 December 1970.

## **EXISTING PROJECTS**

The existing Federal project in the study area is Tampa Harbor. The Tampa Harbor project provides a channel depth of 43 feet to phosphate terminals located in Hillsborough Bay (see figure 1). Alafia River is an existing Federal project as part of the Tampa Harbor project. As authorized, Alafia River has a channel depth of 30 feet water over a bottom width of 200 feet from the ship channel in Hillsborough Bay to and including a turning basin 700 feet wide and 1,200 feet long in Alafia River. The project length is about 3.6 miles.

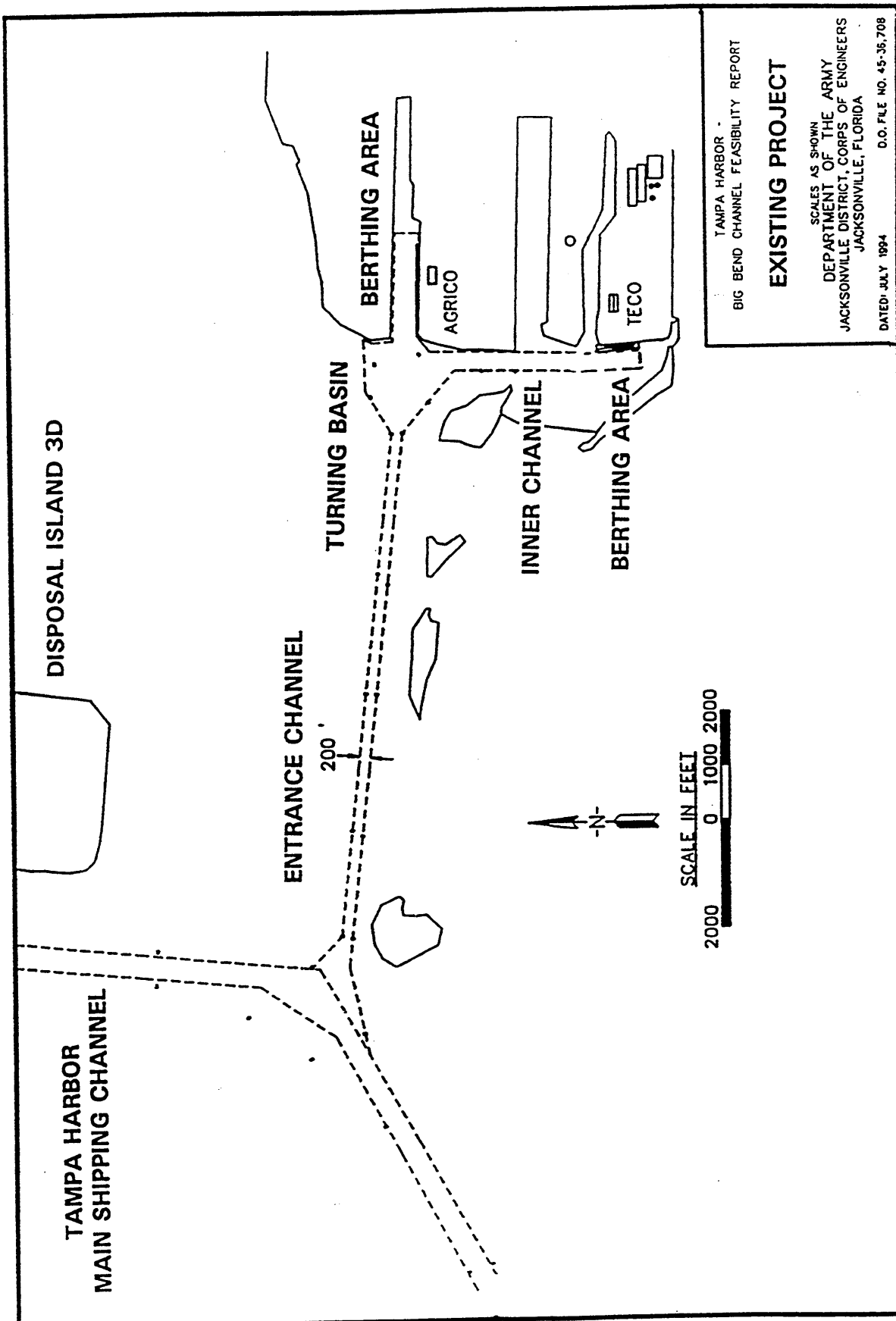
Big Bend Channel is a privately constructed and maintained channel 34 feet deep by 200 feet wide from the main ship channel in Hillsborough Bay to and including a turning basin 1,000 feet long by 700 to 1,500 feet wide. The length of the project is about 2.2 miles (see figure 2).

## **EXISTING CONDITIONS**

The navigation features at Big Bend consist of an entrance channel, turning basin, inner channel, and berthing areas. Private interests dredged a channel to provide access from the Tampa Harbor Main Ship Channel to the facilities in southeast Hillsborough County. Excavation began in 1967 to provide a channel 34 feet deep and 200 feet wide with dredged material going into a private upland area. Construction also included a turning basin and inner channel with project completion in 1969. Since construction, area interests have maintained the project with shoal material going into private upland areas.

## **PORT BERTHS AND TERMINAL FACILITIES**

The general location of facilities at Big Bend are on figure 3. Those terminals enable the unloading of coal and the loading of phosphate rock, processed phosphate chemical, and phosphoric acid. Coal and phosphate rock are the major commodities. The coal terminal is on the southern end of the inner channel next to the coal-fired power plant (see figures 2 and 4). The phosphate loading terminal is on the south side of the channel that is off the eastern end of the turning basin. The sponsor has 150 acres of undeveloped land along the north side of that channel in the Port Redwing area.



TAMPA HARBOR  
BIG BEND CHANNEL FEASIBILITY REPORT

**EXISTING PROJECT**

SCALES AS SHOWN  
DEPARTMENT OF THE ARMY  
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS  
JACKSONVILLE, FLORIDA

DATED: JULY 1994  
D.O. FILE NO. 45-36,708

Figure 2